

Patent Application of  
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for  
POP-UP TOILET PAPER DISPENSER

**CROSS-REFERENCES TO RELATED APPLICATIONS**

This is a non-provisional application claiming the benefit of an application previously filed under 37 C.F.R. §1.53 ( c). The previous application had identity of inventorship, was filed on March 26, 2003, and was assigned Application Ser. No. 60/457,624.

**STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT**

Not Applicable.

## MICROFICHE APPENDIX

Not Applicable

## BACKGROUND OF THE INVENTION

### 1. Field of the Invention.

This invention relates to the field of storage. More specifically, the invention comprises a vertical toilet paper roll dispenser which feeds a single roll off the top of a vertical stack of rolls.

### 2. Description of the Related Art.

Toilet paper is customarily dispensed from a single roll, with additional rolls being stored in separate locations. This fact causes problems when the roll in use is exhausted. Some prior art devices have addressed this concern by storing multiple rolls near the point of use. However, these devices have generally been impractical and inconvenient to use.

## BRIEF SUMMARY OF THE INVENTION

The present invention comprises a toilet paper dispenser which stores several rolls in a vertical column. The rolls are individually dispensed via a swinging carriage located near the column's top. A spring-loaded follower urges the stack of rolls upward, so that as each roll is dispensed, the one immediately below takes its place. The dispensing mechanism is designed so that one and only one roll is dispensed for each cycle of the swinging carriage.

## BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWINGS

FIG. 1 is a perspective view, showing the roll dispenser.

FIG. 2 is a perspective view with a cutaway, showing the internal details of the roll dispenser.

FIG. 3 is a perspective detail view with a cutaway, showing the internal details of the roll dispenser.

FIG. 4 is a perspective view, showing the loading of the roll dispenser.

FIG. 5 is a perspective view, showing the carriage.

FIG. 6 is a perspective view, showing the upper portion of the dispenser with the carriage removed.

FIG. 7 is a perspective view, showing the operation of the carriage.

FIG. 8 is a perspective view, showing the operation of the carriage.

FIG. 9 is a perspective view, showing the dispensing of a roll.

FIG. 10 is a perspective view, showing the completion of a dispensing cycle.

## REFERENCE NUMERALS IN THE DRAWINGS

10	roll dispenser	12	column
14	lid	16	grip
18	slot	20	tab
22	carriage	24	spindle
26	follower	28	spring
30	loading port	32	roll

34	stop collar	36	pivot pin
38	center tube	40	pin receiver
42	ejector finger	44	finger relief
46	ejector finger relief	48	ejection port

## DETAILED DESCRIPTION OF THE INVENTION

FIG. 1 shows roll dispenser 10 as it would ordinarily rest on the floor (in a vertical orientation). The device is placed on the floor, typically in a corner or next to a wall of a bathroom. A larger base can be added for extra stability if desired.

The primary structural element of roll dispenser 10 is column 12, which is essentially a hollow cylinder. Its lower end is closed, whereas its upper end is open. Lid 14 selectively closes this open end. It can be attached to column 12 by any convenient means, such as threads, snaps, etc. The particular embodiment shown is threaded into place. Grip 16 allows the user to easily grasp and rotate lid 14.

The upper portion of column 12 opens into ejection port 48. This port is selectively opened and closed by carriage 22, which is pivotally attached to column 12. Carriage 22 is shown partially open in the view.

Column 12 also has two vertical slots 18. Only one is visible in FIG. 1. Its counterpart is found in the portion of the column facing away from the viewer. Two tabs 20 ride up and down within the two slots 18.

FIG. 2 shows the same assembly with a cutaway (the carriage has been rotated into the closed position. Lid 14 has been removed to expose the open upper end of column 12 - designated as loading port 30. Spindle 24 is located in the center of column 12's hollow interior. Follower 26 is urged upward on spindle 24 by the action of spring 28. When rolls 32 are placed on spindle 24, follower 26 urges them upward. The reader will observe that tab 20 is actually connected to follower 26 so that it moves with follower 26.

FIG. 3 shows a detail view of the same assembly with the rolls removed. Both slots 18 are visible, as are both tabs 20. The top of spindle 24 has stop collar 34, which arrests the upward travel of follower 26 once it reaches this point. The reader will observe that the aforementioned pivotal connection between carriage 22 and column 12 is made by pivot pin 36.

FIG. 4 shows the loading of the device. A plurality of rolls 32 is inserted through the open loading port 30 (the lid is removed). Center tube 38 of each roll 32 is slipped over spindle 24. If the uppermost roll is denoted as the "first" roll, and the one immediately below the "second" roll, then the operation of the device can be generally described as follows: Once the lid is replaced, spring 28 will urge the rolls upward, so that the first roll lies at the top of column 12, under lid 14. It therefore lies inside carriage 22. When carriage 22 is rotated outward, this first roll is dispensed. The second roll is then urged upward to take the place of the first roll, whereupon the cycle repeats.

Additional features are desirable to facilitate a smooth dispensing cycle. These will now be described in detail. FIG. 5 shows carriage 22 in more detail. Pin receiver 40 is provided to receive pivot pin 36. Two ejector fingers 42 are provided adjacent to pin receiver 40. Finger relief 44 is provided on the opposite side of carriage 22. This feature allows the user to more easily grip and open carriage 22.

FIG. 6 shows the corresponding features defining ejection port 48 (Carriage 22 is shown removed in the view). Pivot pin 36 defines the pivoting joint. Two ejector finger reliefs 46 are provided to receive the two ejector fingers 42 on carriage 22.

FIG. 7 shows the upper part of the dispenser with carriage 22 rotated partially open. The reader will observe that the lower ejector finger 42 rotates over the top of the "second" roll 32 as carriage 22 swings open. This feature prevents the second roll from rising upward under the influence of spring 28. The reader will also observe that a finger relief 44 is provided in column 12 to correspond to the finger relief 44 found in carriage 22. These two reliefs allow the user to easily grasp carriage 22 when it is in the closed position, so that it may be rotated toward the open position.

FIG. 8 shows the actual dispensing cycle (including a cutaway to aid visualization). When the device is loaded, the upper or "first" roll always lies within carriage 22. When carriage 22 is rotated open, the two ejector fingers 42 push against the back side of the first roll and urge it outward as shown. The user then grasps the first roll and pulls it free for use.

FIG. 9 shows this configuration once the first roll has been pulled free. The reader will observe the position of the lower ejector finger 42, which now rests over the "second" roll 32 and holds it in place. This fact allows the easy removal of the first roll, since the second roll is not being urged upward against its lower surface, thereby jamming it.

FIG. 10 shows the cycle once carriage 22 is closed. The closing of the carriage places the lower ejector finger 42 back within ejector finger relief 46, removing the impediment to the upward travel of the second roll. Follower 26 then moves upward and the "second" roll becomes the "first" roll." The cycle may then be repeated.

Those skilled in the art will realize that the embodiment shown can store up to six rolls. Those skilled in the art will also realize that taller and shorter versions can be made to store different quantities. Tab 20 - moving in slot 18 - provides a convenient visual indication regarding the number of rolls remaining in the dispenser. As it moves upward, the user knows the number of rolls is diminishing. Text or graphical symbols can be placed on the outside of column 12 near slot 18 to assist the indication function. Column 18 could also be molded from transparent material so that the user could actually see the rolls inside.

The preceding description contains significant detail regarding the novel aspects of the present invention. It should not be construed, however, as limiting the scope of the invention but rather as providing illustrations of the preferred embodiments of the invention. As an example - the dispenser need not be mounted vertically. It could also be mounted horizontally along the wall of a bathroom stall. Follower 26 would then urge the rolls from one side to the other rather than upwards. The device would otherwise function in the same fashion. Thus, the scope of the invention should be fixed by the following claims, rather than by the examples given.